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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,011	06/30/2000	Hong-Ta James Chan	194027US3	9552
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER BRUENJES, CHRISTOPHER P	
			ART UNIT 1772	PAPER NUMBER

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,011

Applicant(s)

CHAN ET AL.

Examiner

Christopher P Bruenjes

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10, 11, 15, 19, 22-26 and 31-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10, 11, 15, 19, 22-26 and 31-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040413, 20040608.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

WITHDRAWN REJECTIONS

1. The 35 U.S.C. 102 rejections of claims 1-11, 25-28, 30 and 36 as anticipated by Ageheim of record in the Office Action mailed May 15, 2003, Page 3 Paragraph 5, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.
2. The 35 U.S.C. 103 rejections of claims 19 and 34-35 over Ageheim of record in the Office Action mailed May 15, 2004, Pages 4-5 Paragraph 6, and in the Office Action mailed March 1, 2004, Pages 13-14 Paragraph 15, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.
3. The 35 U.S.C. 103 rejections of claims 15 and 23-24 over Ageheim in view of Hata of record in the Office Action mailed May 15, 2004, Pages 5-7 Paragraph 7, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.
4. The 35 U.S.C. 103 rejections of claim 22 over Ageheim in view of Kido of record in the Office Action mailed May 15, 2004, Pages 7-8 Paragraph 8 have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.

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5. The double patenting rejections of claims 10-11, 19, 25-29, 31-32, and 34-36 over Claims 1 and 13-23 of USPN 6,398,059 and claims 10-11, 15, 19, 26-32, and 34-36 over Claims 1-15 of 09/817,029 of record in the Office Action mailed March 1, 2004, Pages 5-7 Paragraph 6-7, have been withdrawn due to the terminal disclaimer filed June 8, 2004.

6. The claim objections of claims 10, 27, and 31-33 and the 35 U.S.C. 112 rejections of claims 10-11, 15, 19, and 22-36 of record in the Office Action mailed March 1, 2004, Pages 7-8 Paragraphs 8-9, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.

7. The 35 U.S.C. 102 rejections of claims 10, 19, 28, and 34-36 as anticipated by Berteaud of record in the Office Action mailed March 1, 2004, Page 10 Paragraph 11, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.

8. The 35 U.S.C. 102 rejections of claims 10 and 30 as anticipated by Moens of record in the Office Action mailed March 1, 2004, Pages 10-11 Paragraph 12, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.

9. The 35 U.S.C. 102 rejections of claims 10 and 29 as anticipated by George of record in the Office Action mailed March 1, 2004, Page 11 Paragraph 13, have been withdrawn due to Applicant's amendments in the Paper filed June 8, 2004.

REPEATED REJECTIONS

10. The 35 U.S.C. 102 rejections of claims 10, 31, and 34-36 as anticipated by SEIT are repeated for the reasons previously of record in the Office Action mailed March 1, 2004, Page 9 Paragraph 10.

Regarding the new limitation that the ethylene-vinyl alcohol copolymer has an ethylene content of about 5-55%, the saponified EVA of SEIT inherently has an ethylene content in the same range because the material is being used for the same purpose and because one of ordinary skill in the art would have recognized that saponification of EVA forms an ethylene-vinyl alcohol copolymer.

NEW REJECTIONS

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 10, 11, 19, 25-26, 31, and 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirabayashi et al (JP 55-133920 A).

Hirabayashi et al anticipate a container comprising a substrate formed by injection molding a high-density polyethylene article (p.3, 1.12-17 of translation). A barrier material is added to the inner surface of the substrate without an intervening adhesive layer as a powder, after melting the powder by any spray coating method (p.4, 1.23 through p.5, 1.1 of translation). The barrier material comprises nylon and/or ethylene-vinyl acetate (p.5, 1.10-13), such as EVAL (p.6, 1.5-6), which is an ethylene-vinyl alcohol copolymer having an ethylene content of about 5-55%. The barrier material inherently has a solubility parameter obtained according to Fedors' formula greater than 11, because the solubility parameter is based on the composition of the material and EVAL and nylon both have solubility parameters greater than 11 based

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on their composition. The limitation that the container is used to store fuel or is in the form of a tube are intended use limitations and therefore receive little patentable weight, because articles are defined by their structure not merely stating the intended use of the article. In this case the structure of the container does not change merely because it is filled with a different fluid. The barrier material inherently has a gasoline permeation of $100\text{g}\cdot 20\mu\text{m}/\text{m}^2\cdot\text{day}$ at 40°C and 65%RH and an oxygen transmission rate of $100\text{cc}\cdot 20\mu\text{m}/\text{m}^2\cdot\text{day}\cdot\text{atm}$ at 20°C and 65%RH because the barrier material of Hirabayashi et al is the same material used in the instant invention and the same material must have the same properties. The Fedors' solubility parameter of the substrate or polyolefin is inherently 6.7 because Fedors' solubility parameter is determined by the composition of the material and Hirabayashi teaches the same material used as the polyolefin as the instant invention. The outer surface of the substrate of the polyolefin is an exposed surface because the container is only 2 layers (p.5, 1.2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
12. Claims 15 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadr (USPN 6,467,643) in view of Hirabayashi et al (JP 55-133920 A).

Sadr teaches that fuel container components such as fuel tanks and fuel tubes are formed by co-extrusion blow molding having a barrier layer sandwiched between polyethylene layers (see abstract). Sadr further teaches that during formation the barrier layer may be ruptured at portions of the container such as a cut edge or pinch-off part cutting face, and that a sealing bead material having barrier properties is used to seal the barrier layer discontinuities (see abstract).

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Sadr fails to teach using EVOH as the sealing bead material on the exposed discontinuities. However, Hirabayashi teach that EVOH in the form of EVAL is directly applied to polyethylene containers, such as the one taught by Sadr, in order to improve the gas-barrier properties of the container. One of ordinary skill in the art would have recognized that EVAL, which is ethylene-vinyl alcohol copolymer having an ethylene content between 5 and 55%, would be directly applied to a polyethylene container as a melted powder, in order to improve the gas-barrier properties of the container, as taught by Hirabayashi.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to seal the intermediate barrier layer discontinuities of Sadr with the melted powder EVAL of Hirabayashi et al in order to improve the gas-barrier properties of the container, as taught by Hirabayashi by applying EVAL directly to polyolefin containers and by Sadr by teaching that a barrier material is applied to discontinuities in a container.

13. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al (JP 55-133920 A) in view of Ikeda et al (USPN 5,466,748).

Hirabayashi et al teach all that is claimed in claim 10, but fail to explicitly teach adding 5-50% by weight of a boronic acid-modified polyolefin to the EVOH used as the barrier material. However, Ikeda et al teach that EVOH alone is insufficient in softness, mechanical properties, particularly in impact strength, therefore polyolefins are mixed in to EVOH to improve impact strength. However, blends of EVOH and a polyolefin have poor affinity and compatibility with each other, giving molded products having markedly low mechanical properties and transparency (col.1, 1.10-35). Therefore, to provide the EVOH with improved impact strength without sacrificing mechanical properties or transparency, EVOH is blended with a boronic acid-modified polyolefin (col.1, 1.39-50). The blend is formed having 5 to 50% boronic acid-modified polyolefin (col.11, 1.42-52). One of ordinary skill in the art would have recognized that boronic acid-modified polyolefin is added to EVOH in order to provide the gas-barrier properties of EVOH with increased impact strength, as taught by Ikeda et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to blend boronic acid-modified polyolefin with the EVOH of Hirabayashi, in order to improve the impact strength of the

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EVOH layer and ultimately the container, as taught by Ikeda et al.

14. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al (JP 55-133920 A) in view of Itou et al (JP 09-249782).

Hirabayashi teach all that is claimed in claim 10, but fails to explicitly teach adding multi-layered polymer particles to the EVOH. However, Itou et al teach that multi-layered polymer particles are added to EVOH in order to improve mechanical strength and flexibility while preserving the gas barrier properties (p.1, paragraphs 2, 5, and 7 of machine translation). The multi-layered polymer particles are added to the EVOH in an amount between 5 and 50% (p.5, paragraph 26 of machine translation. One of ordinary skill in the art would have recognized that multi-layered polymer particles are added to EVOH in order to improve the mechanical properties such as flexibility of the material without sacrificing the gas barrier properties of the material, as taught by Itou et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to add multi-layered polymer particles to the EVOH layer of Hirabayashi et al in order to improve the mechanical

properties such as flexibility of the layer and ultimately the container without sacrificing the gas barrier properties of the container, as taught by Itou et al.

ANSWERS TO APPLICANT'S ARGUMENTS

15. Applicant's arguments regarding the 35 U.S.C. 102 and 103 rejections of claims 1-11, 19, 25-28, 30, and 34-36 over Ageheim have been considered but are moot since the rejections have been withdrawn.

16. Applicant's arguments regarding the 35 U.S.C. 103 rejections of claims 15 and 23-24 over Ageheim in view of Hata have been considered but are moot since the rejections have been withdrawn.

17. Applicant's arguments regarding the 35 U.S.C. 103 rejection of claim 22 over Ageheim in view of Kido have been considered but are moot since the rejection has been withdrawn.

18. Applicant's arguments regarding the claim objection and the 35 U.S.C. 112 rejections have been considered but are moot since the rejections have been withdrawn.

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19. Applicant's arguments regarding the 35 U.S.C. 102 rejections of record as anticipated by Berteaud, Moens, or George, have been considered but are moot since the rejections have been withdrawn.

20. Applicant's arguments regarding the 35 U.S.C. 102 rejections of claims 10, 31, and 34-36 as anticipated by SEIT have been fully considered but are not persuasive.

In response to Applicant's argument that SEIT fail to teach an ethylene vinyl alcohol copolymer having an ethylene content between 5 and 55%, SEIT teach a saponified EVA. Saponification of EVA creates an ethylene-vinyl alcohol copolymer because saponification entails adding a hydroxide group to an ester, in this case ethylene-vinyl acetate. Furthermore, inherently the ethylene content of the EVOH or saponified EVA would be between 5 and 55% because it is a common content for EVOH used as a barrier material, and both the instant invention and SEIT are using the layer for the same purpose.

21. Applicant's arguments regarding the double patenting rejections of record have been fully considered but are moot since the rejections have been withdrawn.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Oishi et al (USPN 5,849,376); Oishi et al (EP 0759359 A1).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P Bruenjes whose telephone number is 571-272-1489.

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The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher P Bruenjes
Examiner
Art Unit 1772

CPB

August 2, 2004


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

8/3/04